6 5 4 3 2 1

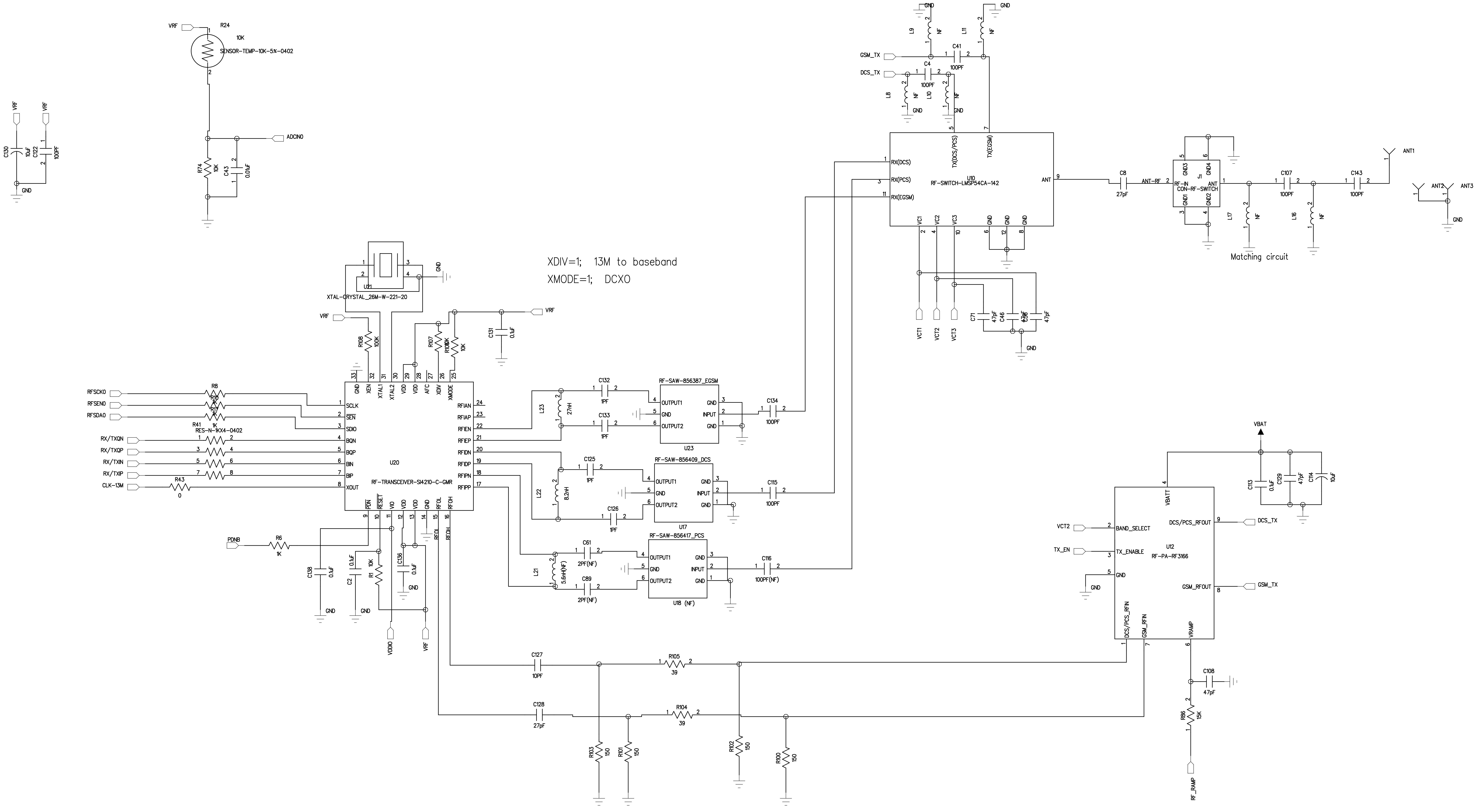
| REVISION RECORD | | | |
|---|---|---|---|
| LTR | ECO NO: | APPROVED: | DATE: |
| | | | |
| | | | |
| | | | |
| | | | |

D

C

B

A

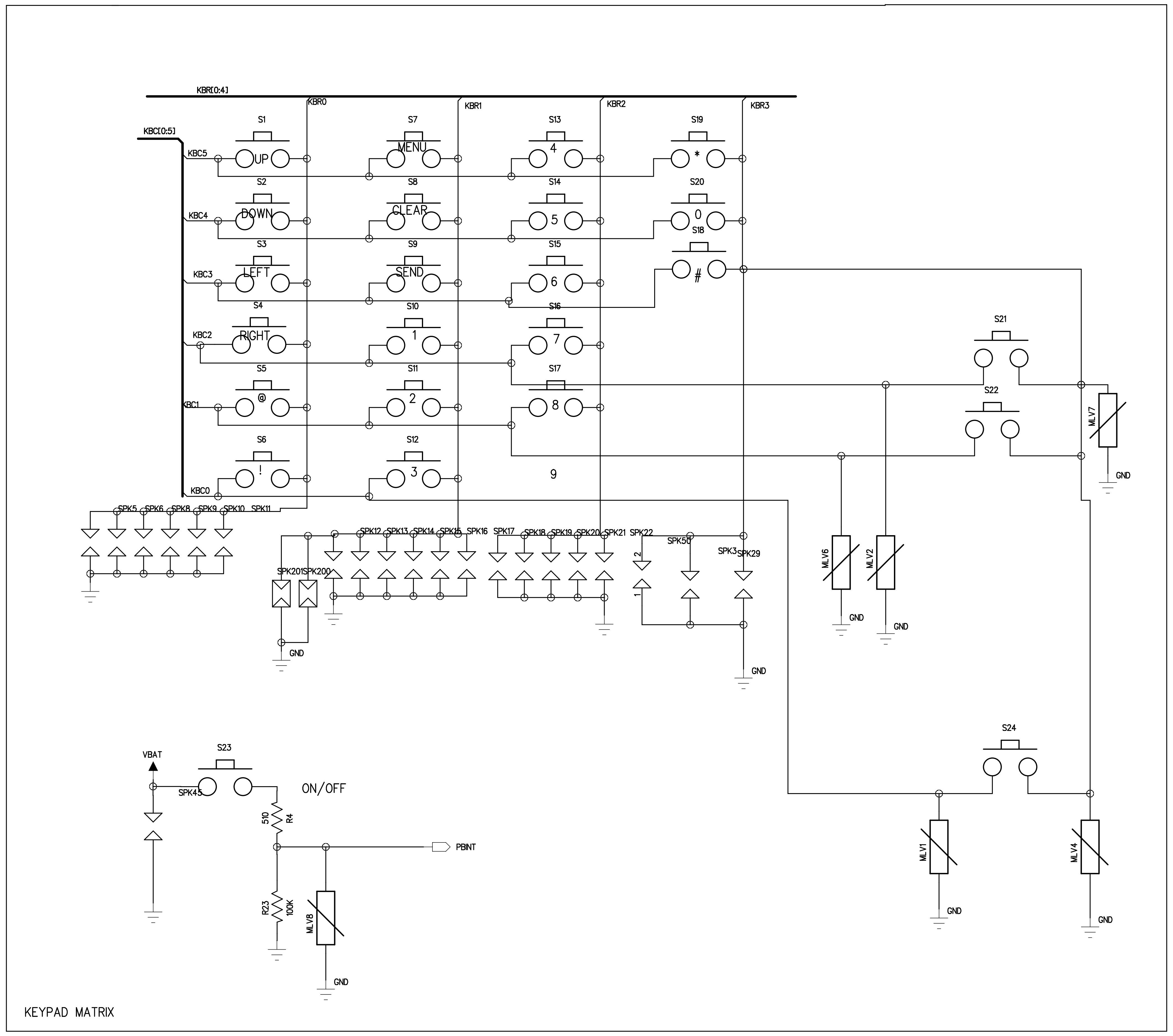


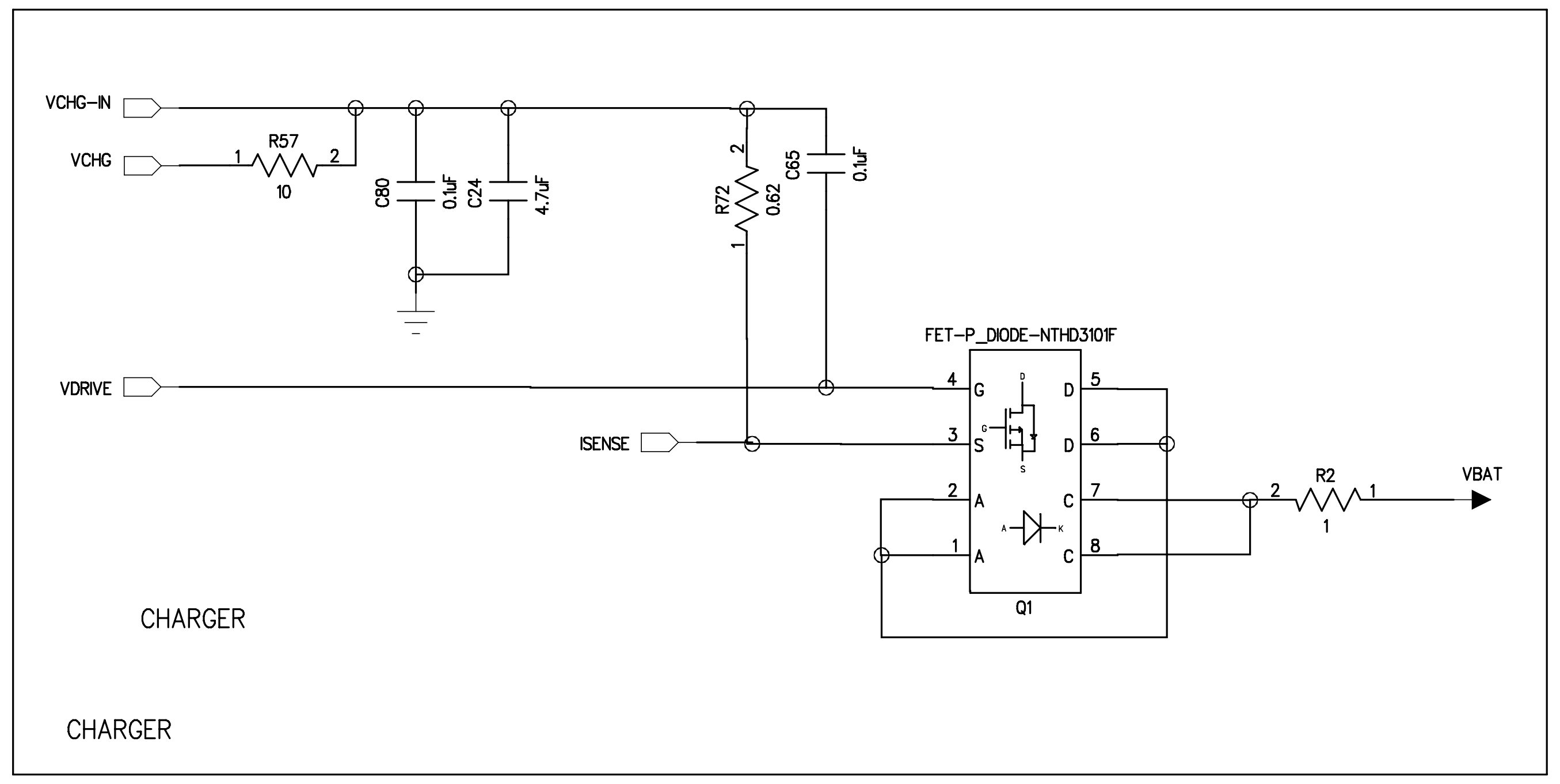
VRF
R24
10K
SENSOR-TEMP-10K-5%-0402
ADCIN0
R74
10K
C43
0.01uF
C130
10uF
C122
100PF
GND
XDIV=1; 13M to baseband
XMODE=1; DCXO
U21
XTAL-CRYSTAL_26M-W-221-20
R108
100K
R107
R106
100K
10K
C131
0.1uF
RFSCK0
RFSEN0
RFSDA0
R8
R7
R41
1K
RES-N-1KX4-0402
RX/TXQN
RX/TXQP
RX/TXIN
RX/TXIP
CLK-13M
R43
0
U20
RF-TRANSCEIVER-SI4210-C-GMR
SCLK
SEN
SDIO
BQN
BQP
BIN
BIP
XOUT
GND
XEN
XTAL1
XTAL2
VDD
AFC
XDIV
XMODE
RFIAN
RFIAP
RFIEN
RFIEP
RFIDN
RFIDP
RFIPN
RFIPP
PDN
RESET
VIO
VDD
RFOL
RFOH
PDNB
R6
1K
C138
0.1uF
C2
0.1uF
R1
10K
C136
0.1uF
VDDIO
L23
27nH
C132
1PF
C133
1PF
RF-SAW-B56387_EGSM
OUTPUT1
OUTPUT2
INPUT
U23
C134
100PF
L22
8.2nH
C125
1PF
C126
1PF
RF-SAW-B56409_DCS
U17
C115
100PF
L21
5.6nH(NF)
C61
2PF(NF)
C89
2PF(NF)
RF-SAW-B56417_PCS
U18 (NF)
C116
100PF(NF)
C127
10PF
C128
27pF
R105
39
R104
39
R103
150
R101
150
R102
150
R100
150
GSM_TX
DCS_TX
L9
L11
NF
C41
100PF
C4
100PF
L8
L10
U30
RF-SWITCH-LMSP54CA-142
RX(DCS)
RX(PCS)
RX(EGSM)
TX(DCS/PCS)
TX(EGSM)
ANT
VC1
VC2
VC3
VCT1
VCT2
VCT3
C71
47pF
C46
47pF
C45
47pF
C8
27pF
ANT-RF
J1
RF-IN
CON-RF-SWITCH
GND1
GND2
GND3
GND4
C107
100PF
C143
100PF
L17
L16
Matching circuit
ANT1
ANT2
ANT3
VBAT
C13
0.1uF
C129
47pF
C14
10uF
U12
RF-PA-RF3166
BAND_SELECT
TX_ENABLE
TX_EN
DCS/PCS_RFOUT
GSM_RFOUT
DCS/PCS_RFIN
GSM_RFIN
VRAMP
C108
47pF
R86
15K
RF_RAMP

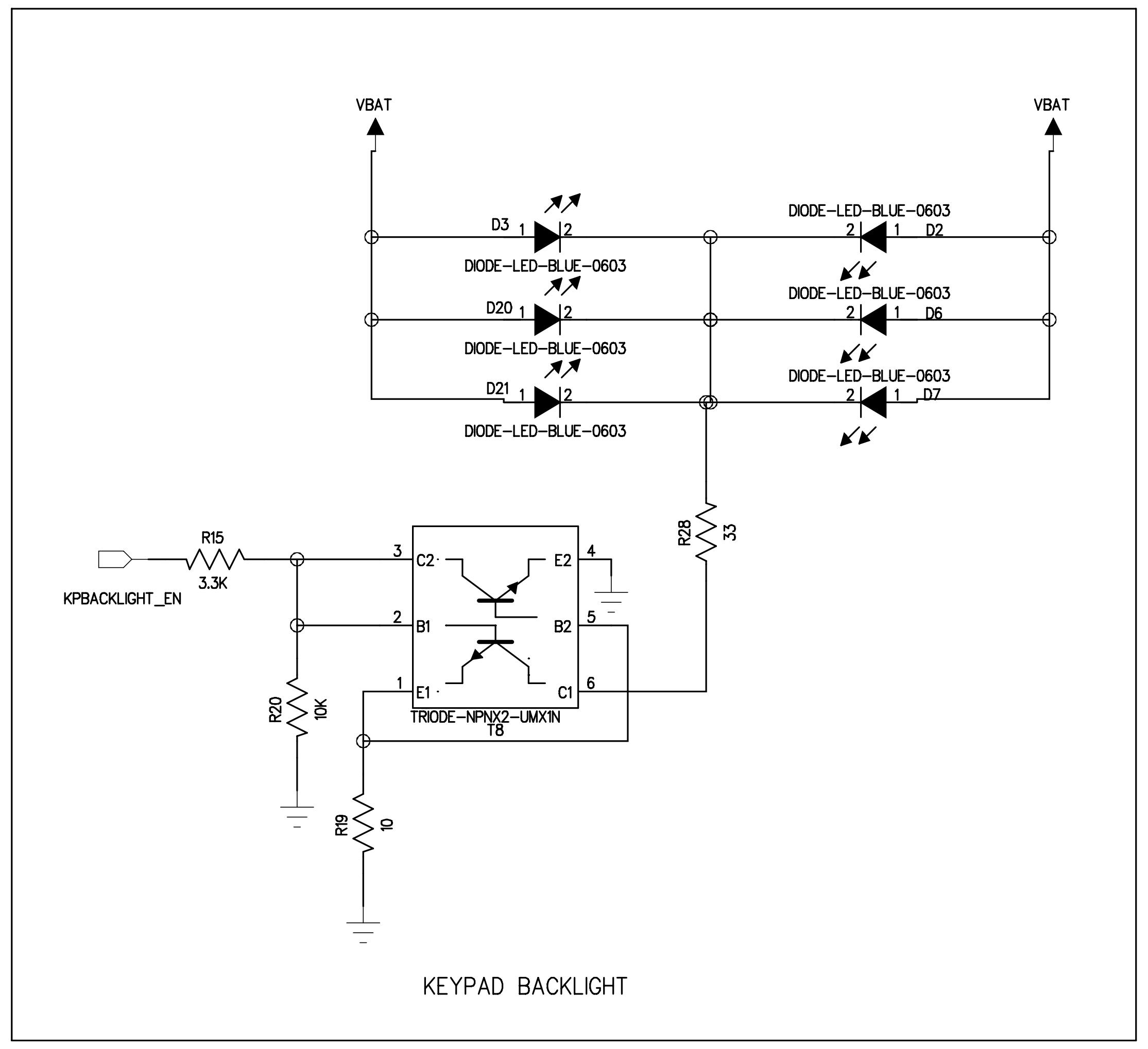
DESIGNER: WILLIAM.ZHU
DATED: 2005.8.13
EQA: Calvin Chen
DATED: 2005.8.15
APPROVED: Liwan.Liang
DATED: 2005.8.15

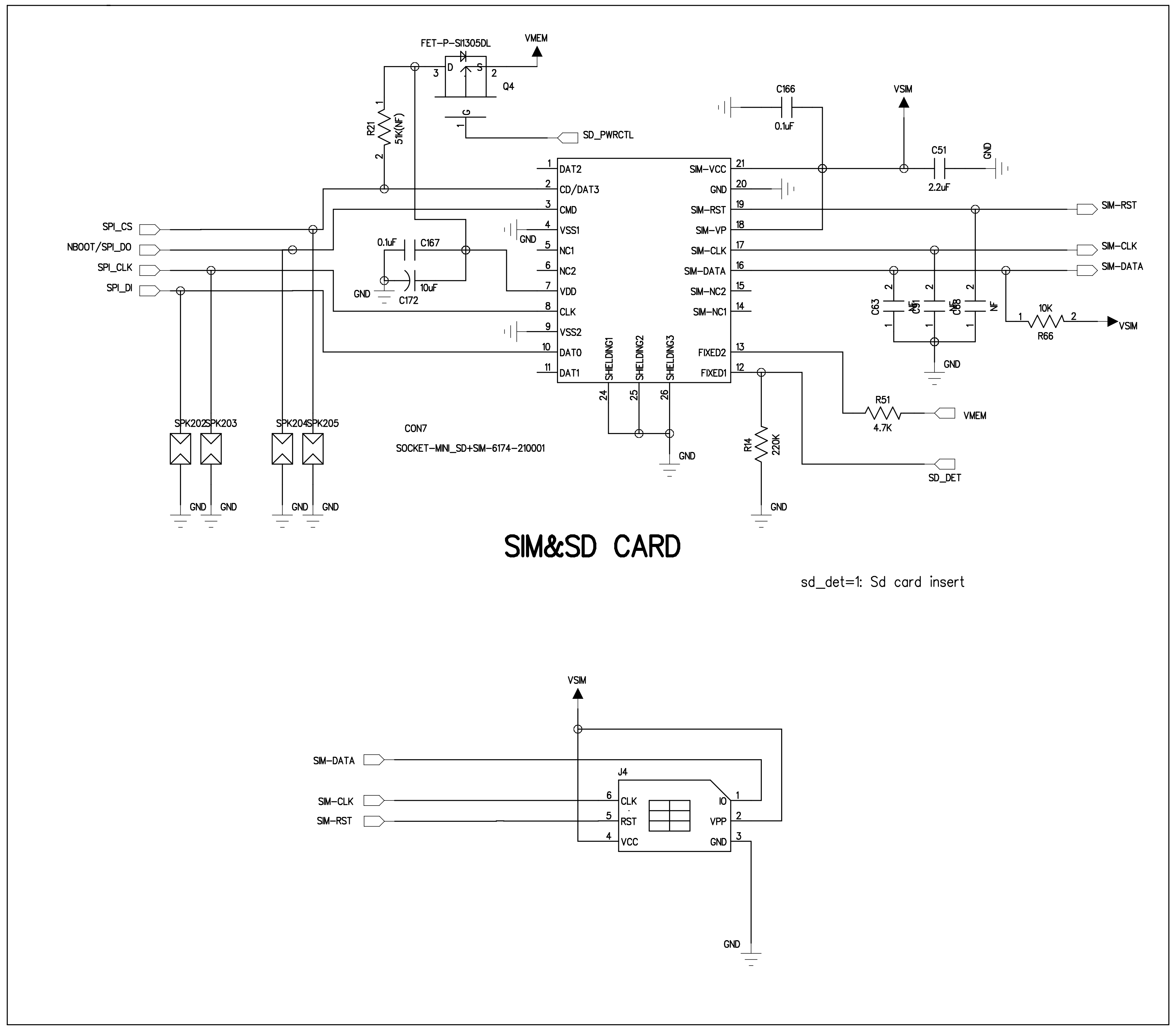
TITLE & REV: **SP7350_SCH_V1.3.0**
DOCUMENT NO.: HW-SP7350-SCH-0003
DEPARTMENT: **Hardware DEPT.**
COMPANY: **Spreadtrum communications, Inc.**
CONFIDENTIAL AND PROPRIETARY
SHEET: 1 OF 5

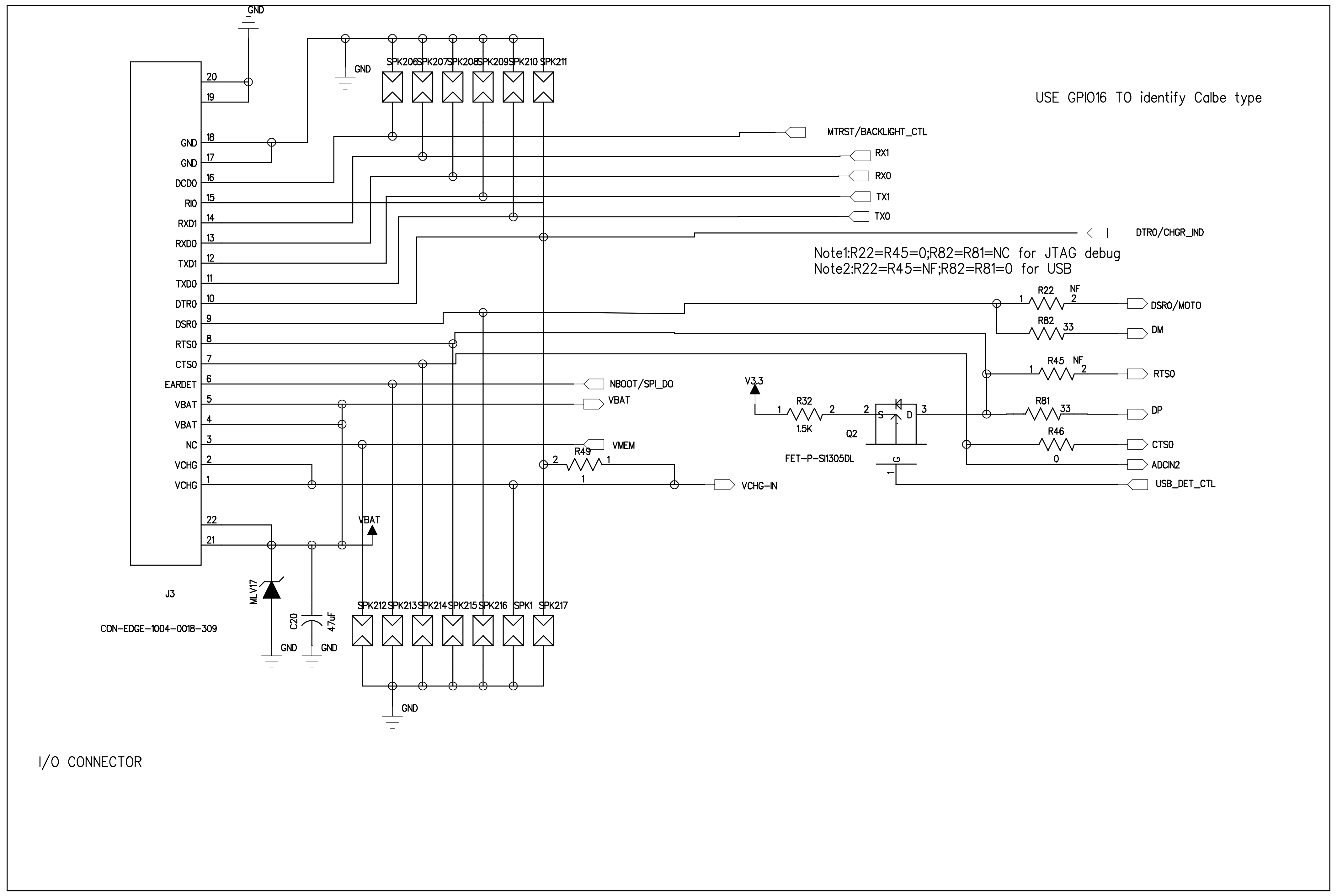
| REVISION RECORD | | | |
|---|---|---|---|
| LTR | ECO NO: | APPROVED: | DATE: |
| | | | |
| | | | |
| | | | |
| | | | |


KBR[0:4]
KBC[0:5]
KBR0
KBR1
KBR2
KBR3
KBC5
KBC4
KBC3
KBC2
KBC1
KBC0
S1 UP
S2 DOWN
S3 LEFT
S4 RIGHT
S5 @
S6 !
S7 MENU
S8 CLEAR
S9 SEND
S10 1
S11 2
S12 3
S13 4
S14 5
S15 6
S16 7
S17 8
9
S19 *
S20 0
S18 #
S21
S22
S23
S24
MLV7
MLV6
MLV2
MLV1
MLV4
MLV8
GND
VBAT
SPK43
ON/OFF
R4 510
R23 100K
PBINT
SPK201
SPK200
SPK30
SPK3
SPK29
SPK22
KEYPAD MATRIX


VCHG-IN
VCHG
R57 10
C80
C24 0.1uF
4.7uF
R72 0.62
C55 0.1uF
FET-P_DIODE-NTHD3101F
VDRIVE
ISENSE
Q1
R2 1
VBAT
CHARGER
CHARGER


VBAT
VBAT
D3
D20
D21
D2
D6
D7
DIODE-LED-BLUE-0603
R15 3.3K
KPBACKLIGHT_EN
R20 10K
R19 10
R28 33
TRIODE-NPNX2-UMX1N
T8
C2
E2
B1
B2
E1
C1
KEYPAD BACKLIGHT


FET-P-SI3050L
VMEM
Q4
R21 5K(NF)
SD_PWRCTL
C166 0.1uF
VSM
C51 2.2uF
GND
DAT2
CD/DAT3
CMD
VSS1
NC1
NC2
VDD
CLK
VSS2
DAT0
DAT1
SIM-VCC
GND
SIM-RST
SIM-VP
SIM-CLK
SIM-DATA
SIM-NC2
SIM-NC1
FIXED2
FIXED1
SHIELDING1
SHIELDING2
SHIELDING3
SPI_CS
NBOOT/SPI_DO
SPI_CLK
SPI_DI
C167 0.1uF
C172 10uF
C63
NF
R66 10K
SIM-RST
SIM-CLK
SIM-DATA
VSM
R51 4.7K
VMEM
R14 22K
SD_DET
SPK202
SPK203
SPK204
SPK205
CON7
SOCKET-MINI_SD+SIM-6174-210001
SIM&SD CARD
sd_det=1: Sd card insert
VSM
SIM-DATA
SIM-CLK
SIM-RST
J4
CLK
RST
VCC
IO
VPP
GND

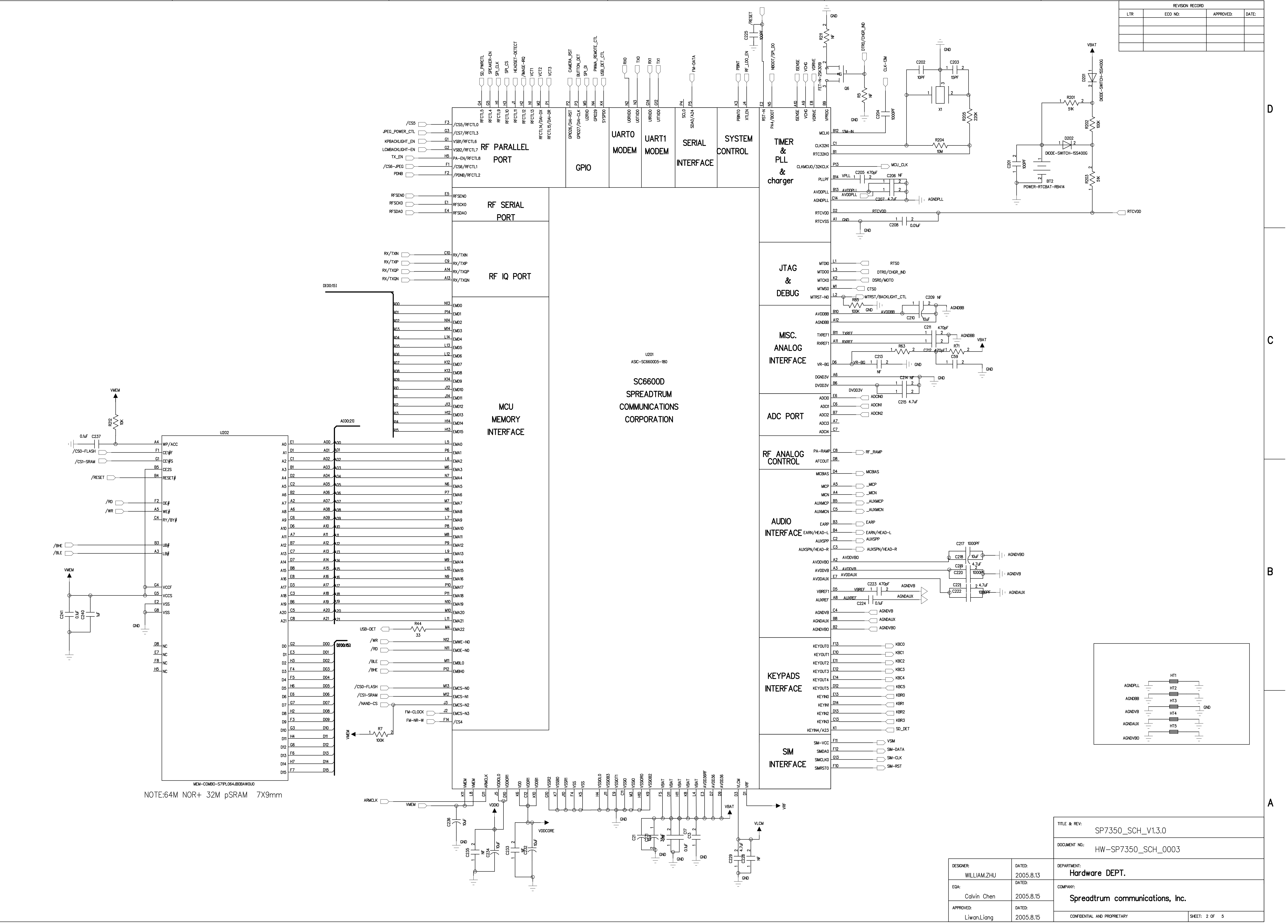

GND
SPK206
SPK207
SPK208
SPK209
SPK210
SPK211
USE GPIO16 TO identify Cabe type
MTRST/BACKLIGHT_CTL
RX1
RX0
TX1
TX0
DTR0/CHGR_IND
Note1:R22=R45=0;R82=R81=NC for JTAG debug
Note2:R22=R45=NF;R82=R81=0 for USB
GND
DCD0
RI0
RXD1
RXD0
TXD1
TXD0
DTR0
DSR0
RTS0
CTS0
EARDET
VBAT
NC
VCHG
R22 NF
DSR0/MOTO
R82 33
DM
R45 NF
RTS0
NBOOT/SPI_DO
VBAT
V3.3
R32 1.5K
Q2
FET-P-SI3050L
R81 33
DP
R46 0
CTS0
ADCIN2
USB_DET_CTL
R49 1
VMEM
VCHG-IN
VBAT
MLV17
C20 47uF
J3
CON-EDGE-1004-0018-309
SPK212
SPK213
SPK214
SPK215
SPK216
SPK1
SPK217
I/O CONNECTOR

| | | | |
|---|---|---|---|
| DESIGNER: WILLIAM.ZHU | DATED: 2005.8.13 | DEPARTMENT: Hardware DEPT. | |
| EQA: Calvin Chen | DATED: 2005.8.15 | COMPANY: Spreadtrum communications, Inc. | |
| APPROVED: Liwan.Liang | DATED: 2005.8.15 | CONFIDENTIAL AND PROPRIETARY | SHEET: 4 OF 5 |

TITLE & REV: SP7350_SCH_V1.3.0

DOCUMENT NO.: HW-SP7350-SCH-0003

| REVISION RECORD | | | |
|---|---|---|---|
| LTR | ECO NO: | APPROVED: | DATE: |
| | | | |
| | | | |
| | | | |
| | | | |


6
5
4
3
2
1
D
C
B
A
U201
ASIC-SC6600D5-180
SC6600D
SPREADTRUM
COMMUNICATIONS
CORPORATION
RF PARALLEL PORT
GPIO
UART0 MODEM
UART1 MODEM
SERIAL INTERFACE
SYSTEM CONTROL
TIMER & PLL & charger
RF SERIAL PORT
RF IQ PORT
MCU MEMORY INTERFACE
JTAG & DEBUG
MISC. ANALOG INTERFACE
ADC PORT
RF ANALOG CONTROL
AUDIO INTERFACE
KEYPADS INTERFACE
SIM INTERFACE
U202
MEM-COMBO-S71PL064JB0BAW0U0
VMEM
R212 10K
C237 0.1uF
/CS0-FLASH
/CS1-SRAM
/RESET
/RD
/WR
/BHE
/BLE
C241 0.1uF
C240 1uF
GND
WP/ACC
CE#F
CE#S
CE2S
RESET#
OE#
WE#
RY/BY#
UB#
LB#
VCCF
VCCS
VSS
NC
/CS5
JPEG_POWER_CTL
KPBACKLIGHT_EN
LCMBACKLIGHT_EN
TX_EN
/CS6-JPEG
PDNB
RFSEN0
RFSCK0
RFSDA0
RX/TXIN
RX/TXIP
RX/TXQP
RX/TXQN
D[0:15]
A[0:21]
USB-DET
R44 33
/NAND-CS
FM-CLOCK
FM-NR-W
R7 100K
ARMCLK
VDDIO
VDDCORE
VBAT
VLCM
VRF
SD_PWRCTL
SPEAKER-EN
SPI_CLK
SPI_CS
HEADSET-DETECT
/IMAGE-IRQ
VCT1
VCT2
VCT3
CAMERA_RST
BUTTON_DET
SPI_DI
PWMA_REMOTE_CTL
USB_DET_CTL
RX0
TX0
RX1
TX1
FM-DATA
PBINT
RF_LDO_EN
/RESET
C225 100PF
NBOOT/SPI_DO
ISENSE
VCHG
VDRIVE
FET-N-2SK3019
Q6
R211 NF
DTR0/CHGR_IND
R5 NF
CLK-13M
C204 1000PF
C202 10PF
C203 15PF
X1
R205 220K
R204 10M
MCU_CLK
C205 470pF
C206 NF
C207 4.7uF
AGNDPLL
RTCVDD
C208 0.01uF
VBAT
D201 DIODE-SWITCH-1SS400G
R201 51K
R202 100K
D202 DIODE-SWITCH-1SS400G
C201 100F
BT2 POWER-RTCBAT-RB414
R203 51K
RTS0
DSR0/MOT0
CTS0
MTRST/BACKLIGHT_CTL
R65 100K
C209 NF
C210 10uF
AGNDBB
C211 470pF
R63
C212 470pF
R71
C59
C213 NF
C214 NF
C215 4.7uF
ADCIN0
ADCIN1
ADCIN2
RF_RAMP
MICBIAS
_MICP
_MICN
_AUXMICP
_AUXMICN
EARP
EARN/HEAD-L
AUXSPP
AUXSPN/HEAD-R
C217 1000PF
C218 10uF
C219 4.7uF
C220 1000PF
C221 4.7uF
C222 1000PF
C223 470pF
C224 0.1uF
AGNDVB0
AGNDVB
AGNDAUX
KBC0
KBC1
KBC2
KBC3
KBC4
KBC5
KBR0
KBR1
KBR2
KBR3
SD_DET
VSIM
SIM-DATA
SIM-CLK
SIM-RST
HT1
HT2
HT3
HT4
HT5
C236 10uF
C235 NF
C234 10uF
C233 NF
C232 10uF
C229 4.7uF
C228 NF
NOTE:64M NOR+ 32M pSRAM 7X9mm

| | |
|---|---|
| TITLE & REV: | SP7350_SCH_V1.3.0 |
| DOCUMENT NO.: | HW-SP7350_SCH_0003 |
| DEPARTMENT: | Hardware DEPT. |
| COMPANY: | Spreadtrum communications, Inc. |

| | |
|---|---|
| DESIGNER: WILLIAM.ZHU | DATED: 2005.8.13 |
| EQA: Calvin Chen | DATED: 2005.8.15 |
| APPROVED: Liwan.Liang | DATED: 2005.8.15 |

CONFIDENTIAL AND PROPRIETARY

SHEET: 2 OF 5

| REVISION RECORD | | | |
|---|---|---|---|
| LTR | ECO NO: | APPROVED: | DATE: |
| | | | |
| | | | |
| | | | |

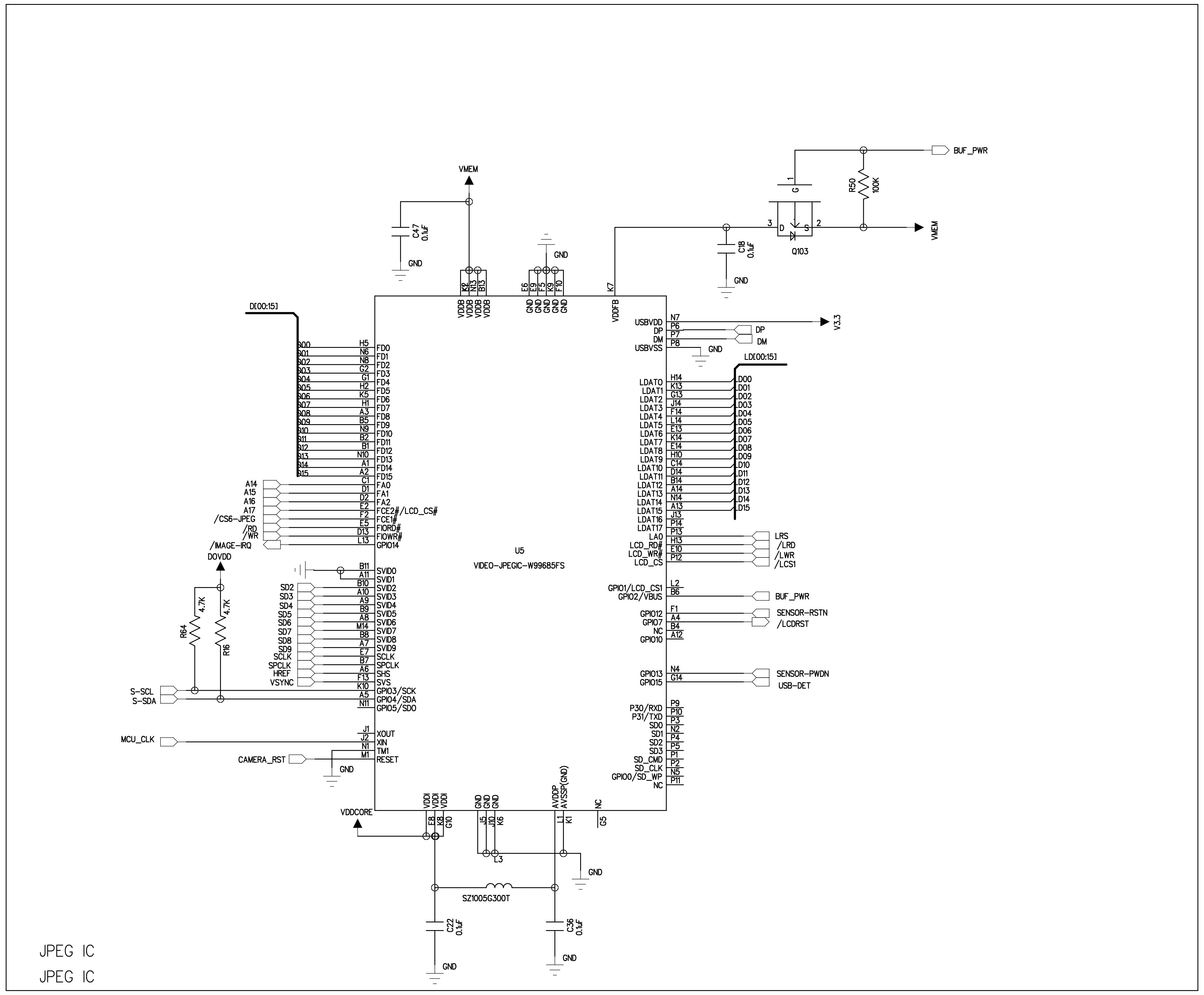
6
5
4
3
2
1
D
C
B
A
MIC CIRCUIT
VMEM
VMIC
VMIC
R56 6.2K
D4 DIODE-SWITCH-1SS400G
C25 33uF
C23 47pF
GND
R9 2K
R58 1K
_MICP
C60 0.1uF
MICP-IN
D5 DIODE-SCHOTTKY-RB481K
_MICN
C66 0.1uF
MICN-IN
_AUXMICP
0.1uF C67
AUXMICP-INT
_AUXMICN
C69 0.1uF
AUXMIC
C72 47pF
C109 47pF
R13 3.9K
C88 47pF
C98 47pF
C102 47pF
C110 47pF
R75 150
R76 150
R33 2K
AUXMIC
C12 47pF
MLV12
MLV11
J5 AUDIO-MIC-ACM4015-02L50-443
VMIC
MICBIAS
R12 1K
C15 0.1uF
C55 100PF
C142 10uF
VBAT
DIODE-SWITCH-1SS400G D11
MOTOR-4TH2-2980B29
MOT1
R98 10
DSRO/MOTO
T5 TRIODE-NPN-DTC143ZM
HEADSET CIRCUIT
BUTTON_DET
R47
R27 220K
VMEM
C39 0.1uF
T2 TRIODE-NPN-DTC143TM
AGNDVB
R30 220K
R77 3.3K
HEADSET-DETECT
C50 1uF
SPK48 SPK40 SPK7 SPK39
J2 CON-EAR-KPVD2504-A1-3
L25 SZ1005G300T
L12 SZ1005G300T
L13 SZ1005G300T
L15 SZ1005G300T
HEADSET_MIC
HEADSET_SPK_R
HEADSET_SPK_L
MIC
AUXSPN/HEAD-R
R26 33
C95 33uF
EARN/HEAD-L
R34 33
C32 33uF
C30 47pF
C26 47pF
R73 20K
MLV3
MLV5
MLV9
MLV10
L18 SZ1005G300T
C144 100PF
FM-ANT
C145 NF
FM RADIO
V3.3
L14 2.2uH
L5 2.2uH
L1 NF
U9 LV24002
VIO
GND
RESERVED
FM-ANT
FM-ANT-GND
GND
HEADPH-L
HEADPH-GND
HEADPH-R
VCC2
LINE-OUT-R
LINE-OUT-L
CLK_IN
CLOCK
DATA
NR_W
VDD
L1
VCC1
L2
VCC
MPX
LINE-IN-R
LINE-IN-L
FM-ANT
R11 33
R29 33
C10 27pF
C52 1000PF
C6 47pF
C7 2.2uF
C54 0.1uF
C150 0.1uF
C62 10uF
C27 C28 C29 C31 10PF
R48 1K
R31 1K
R35 1K
R36 1K
ARMCLK
FM-CLOCK
FM-DATA
FM-NR-W
NBOOT
TP1
TP8
NBOOT/SPI_D0
Audio_AMP
VBAT
C5 10uF
R69 100K
U13 AUDIO-AMP-NCP4894DMR2
SD_SEL
IN-
SD_MODE
IN+
BYPASS
VO2
VDD
NC
GND
VO1
SPEAKER-EN
C79 0.1uF
R40 20K
EARP
C81 0.1uF
R62 20K
C53 NF
C74 1uF
R78 100K
SPEAKER-
L7 SZ1005G300T
L26 SZ1005G300T
C40 47pF
C45 47pF
MLV13
MLV14
SPK28 SPK27 PAD-ESD
CON2
CON3
SPERKER CON
AUXSPP
AUXSPN/HEAD-R
L4 SZ1005G300T
L6 SZ1005G300T
C34 47pF
C38 47pF
MLV15
MLV16
SPK43 PAD-ESD
SPK26 PAD-ESD
SPK25 AUDIO-RECEIVER-SDRP0615CJ03-F2B

Note:C69=1uF D4=0 ohm fresistor(or C69=0 ohm resistor, d4 mounted) for earphpne detect

V=3.2~4.2V,Vce=0.2V
Moto:R=30ohm,2V,66mA~2.7V,88mA

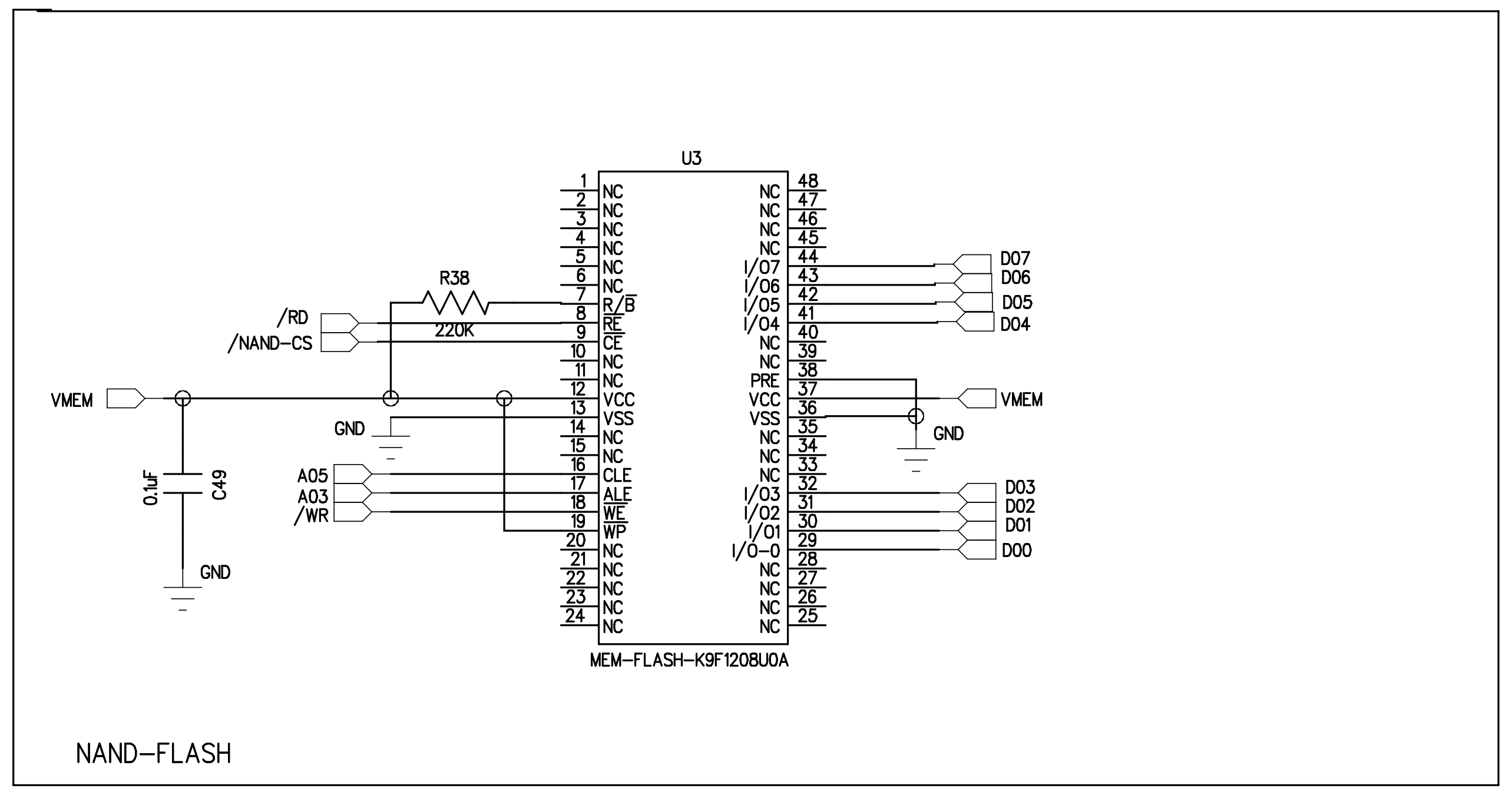
| | | | |
|---|---|---|---|
| | | TITLE & REV: | SP7350_SCH_V1.3.0 |
| | | DOCUMENT NO.: | HW-SP7350-SCH-0003 |
| DESIGNER: WILLIAM.ZHU | DATED: 2005.8.13 | DEPARTMENT: | **Hardware DEPT.** |
| EQA: Calvin Chen | DATED: 2005.8.15 | COMPANY: | **Spreadtrum communications, Inc.** |
| APPROVED: Liwan.Liang | DATED: 2005.8.15 | CONFIDENTIAL AND PROPRIETARY | SHEET: 3 OF 5 |

| REVISION RECORD | | | |
|---|---|---|---|
| LTR | ECO NO: | APPROVED: | DATE: |
| | | | |
| | | | |
| | | | |
| | | | |

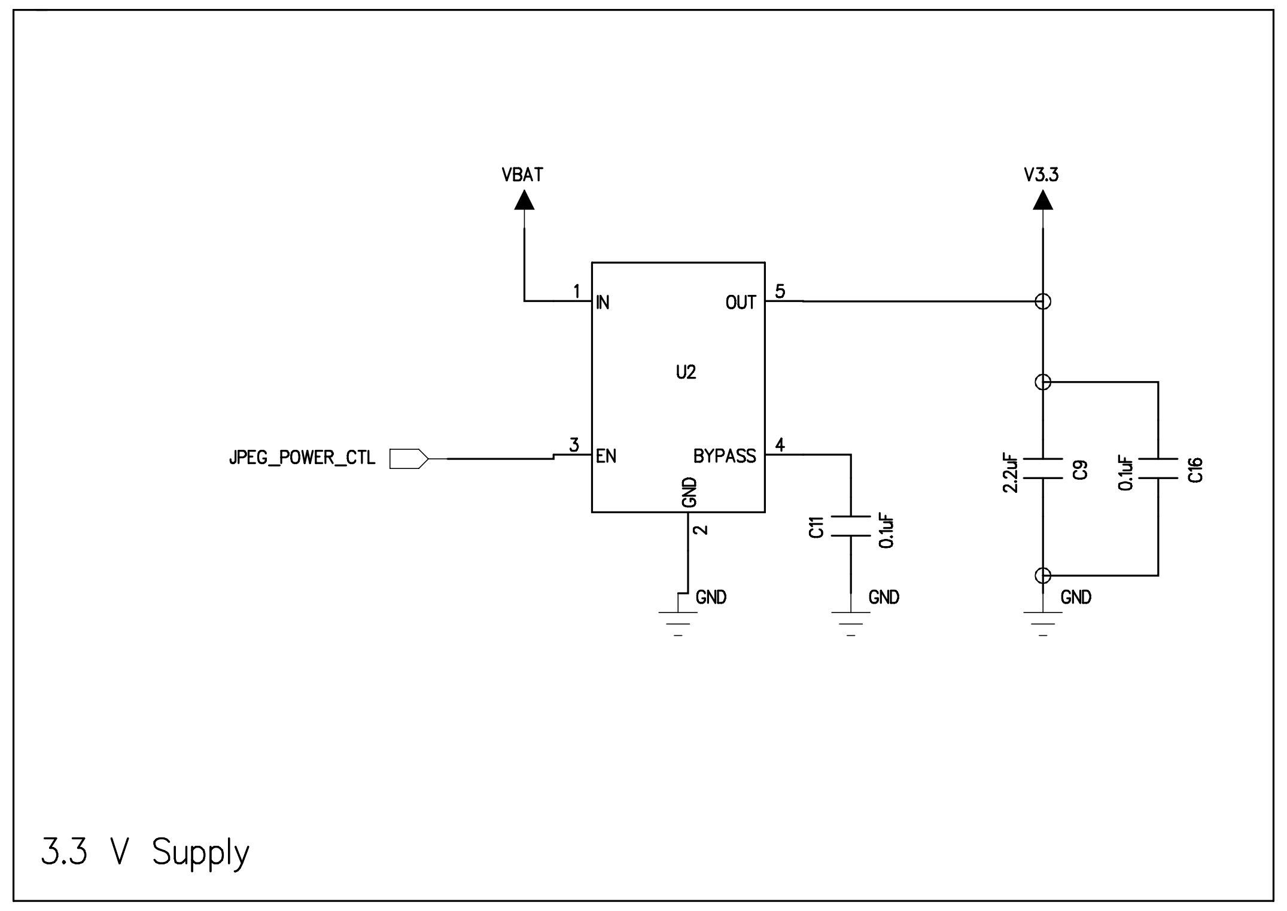

VMEM
C47
0.1uF
GND
K2 N13 B13
VDDB VDDB VDDB VDDB
E6 E9 F5 K9 F10
GND GND GND GND GND
K7
VDDFB
Q103
G D S
R50
100K
C18
0.1uF
BUF_PWR
VMEM
D[00:15]
D00 D01 D02 D03 D04 D05 D06 D07 D08 D09 D10 D11 D12 D13 D14 D15
H5 N6 N8 G2 G1 H2 K5 H1 A3 B5 N9 B2 B1 N10 A1 A2
FD0 FD1 FD2 FD3 FD4 FD5 FD6 FD7 FD8 FD9 FD10 FD11 FD12 FD13 FD14 FD15
A14 A15 A16 A17 /CS6-JPEG /RD /WR /IMAGE-IRQ
C1 D1 D2 E2 F2 E5 D13 L13
FA0 FA1 FA2 FCE2#/LCD_CS# FCE1# FIORD# FIOWR# GPIO14
DOVDD
R64 4.7K
R16 4.7K
B11 A11 B10 A10 A9 B9 A8 M14 B8 A7 E7 B7 A6 F13 K10 A5 N11
SVID0 SVID1 SVID2 SVID3 SVID4 SVID5 SVID6 SVID7 SVID8 SVID9 SCLK SPCLK SHS SVS GPIO3/SCK GPIO4/SDA GPIO5/SDO
SD2 SD3 SD4 SD5 SD6 SD7 SD8 SD9 SCLK SPCLK HREF VSYNC
S-SCL
S-SDA
MCU_CLK
CAMERA_RST
J1 J2 N1 M1
XOUT XIN TM1 RESET
GND
U5
VIDEO-JPEGIC-W99685FS
USBVDD DP DM USBVSS
N7 P6 P7 P8
V3.3
DP
DM
GND
LD[00:15]
LDAT0 LDAT1 LDAT2 LDAT3 LDAT4 LDAT5 LDAT6 LDAT7 LDAT8 LDAT9 LDAT10 LDAT11 LDAT12 LDAT13 LDAT14 LDAT15 LDAT16 LDAT17
H14 K13 G13 J14 F14 L14 E13 K14 E14 H10 C14 D14 B14 A14 N14 A13 J13 P14
D00 D01 D02 D03 D04 D05 D06 D07 D08 D09 D10 D11 D12 D13 D14 D15
LA0 LCD_RD# LCD_WR# LCD_CS
P13 H13 E10 P12
LRS /LRD /LWR /LCS1
GPIO1/LCD_CS1 GPIO2/VBUS
L2 B6
BUF_PWR
GPIO12 GPIO7 NC GPIO10
F1 A4 B4 A12
SENSOR-RSTN
/LCDRST
GPIO13 GPIO15
N4 G14
SENSOR-PWDN
USB-DET
P30/RXD P31/TXD SD0 SD1 SD2 SD3 SD_CMD SD_CLK GPIO0/SD_WP NC
P9 P10 P3 N2 P4 P5 P1 P2 N5 P11
VDDCORE
VDDI VDDI VDDI
E8 K8 G10
GND GND GND
J5 J10 K6
AVDDP AVSSP(GND)
L1 K1
NC G5
L3
GND
SZ1005G300T
C22 0.1uF
C36 0.1uF
GND

JPEG IC

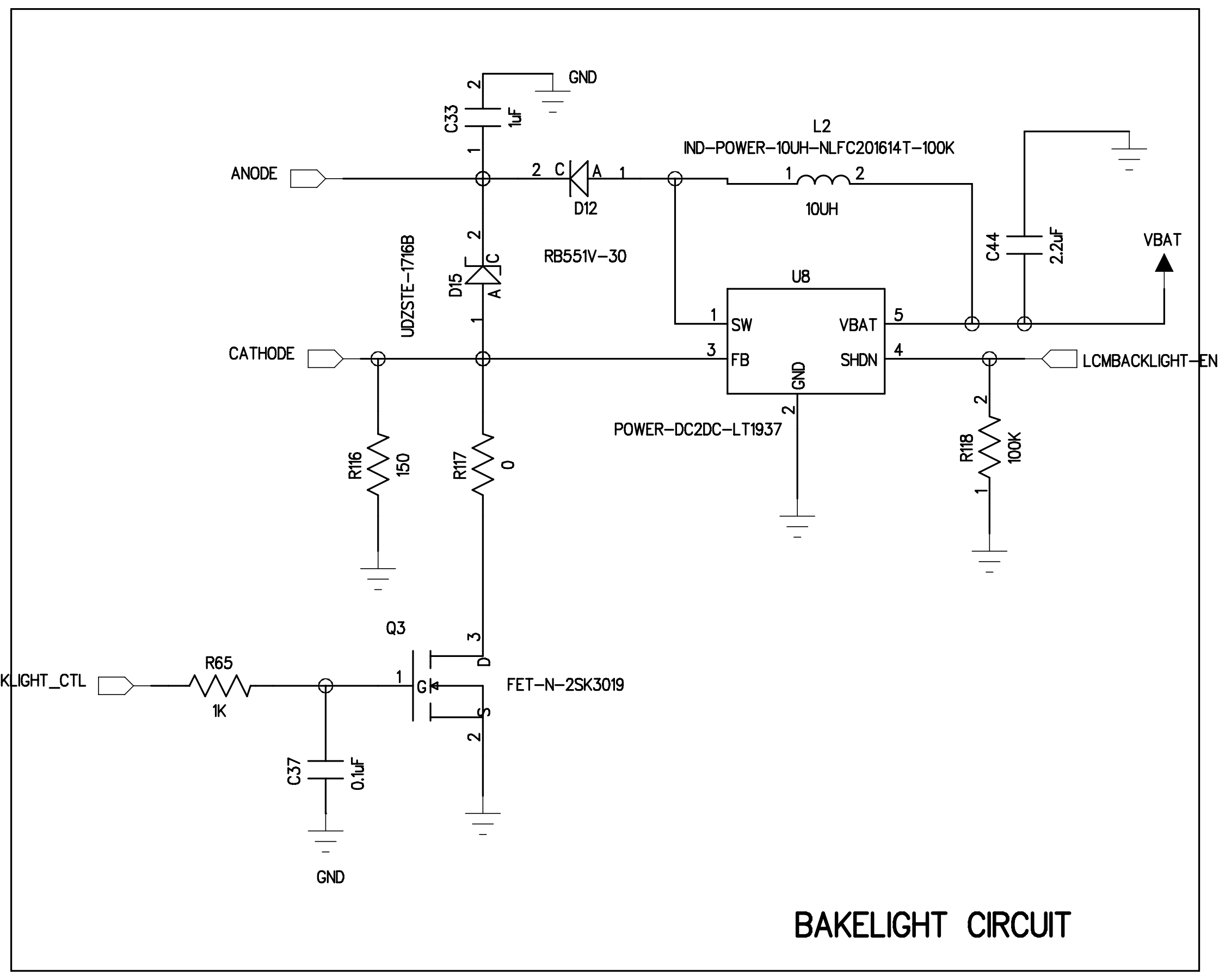
JPEG IC


U3
R38
220K
/RD
/NAND-CS
VMEM
GND
C49
0.1uF
A05
A03
/WR
1 NC
2 NC
3 NC
4 NC
5 NC
6 NC
7 R/B
8 RE
9 CE
10 NC
11 NC
12 VCC
13 VSS
14 NC
15 NC
16 CLE
17 ALE
18 WE
19 WP
20 NC
21 NC
22 NC
23 NC
24 NC
48 NC
47 NC
46 NC
45 NC
44 I/O7
43 I/O6
42 I/O5
41 I/O4
40 NC
39 NC
38 PRE
37 VCC
36 VSS
35 NC
34 NC
33 NC
32 I/O3
31 I/O2
30 I/O1
29 I/O-0
28 NC
27 NC
26 NC
25 NC
D07 D06 D05 D04
VMEM
GND
D03 D02 D01 D00
MEM-FLASH-K9F1208U0A

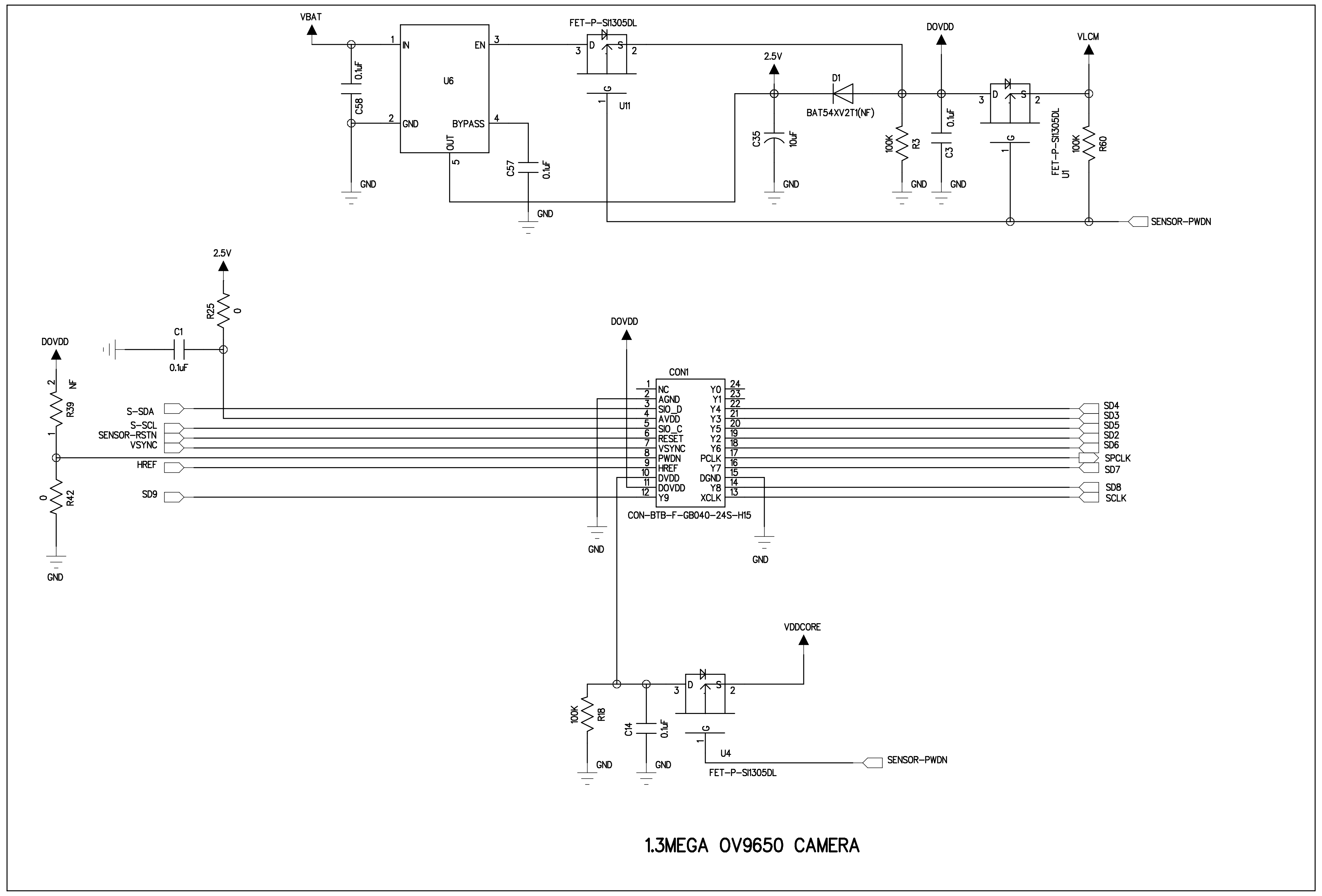
NAND-FLASH


VBAT
V3.3
U2
1 IN
5 OUT
3 EN
4 BYPASS
GND 2
JPEG_POWER_CTL
C11 0.1uF
C9 2.2uF
C16 0.1uF
GND

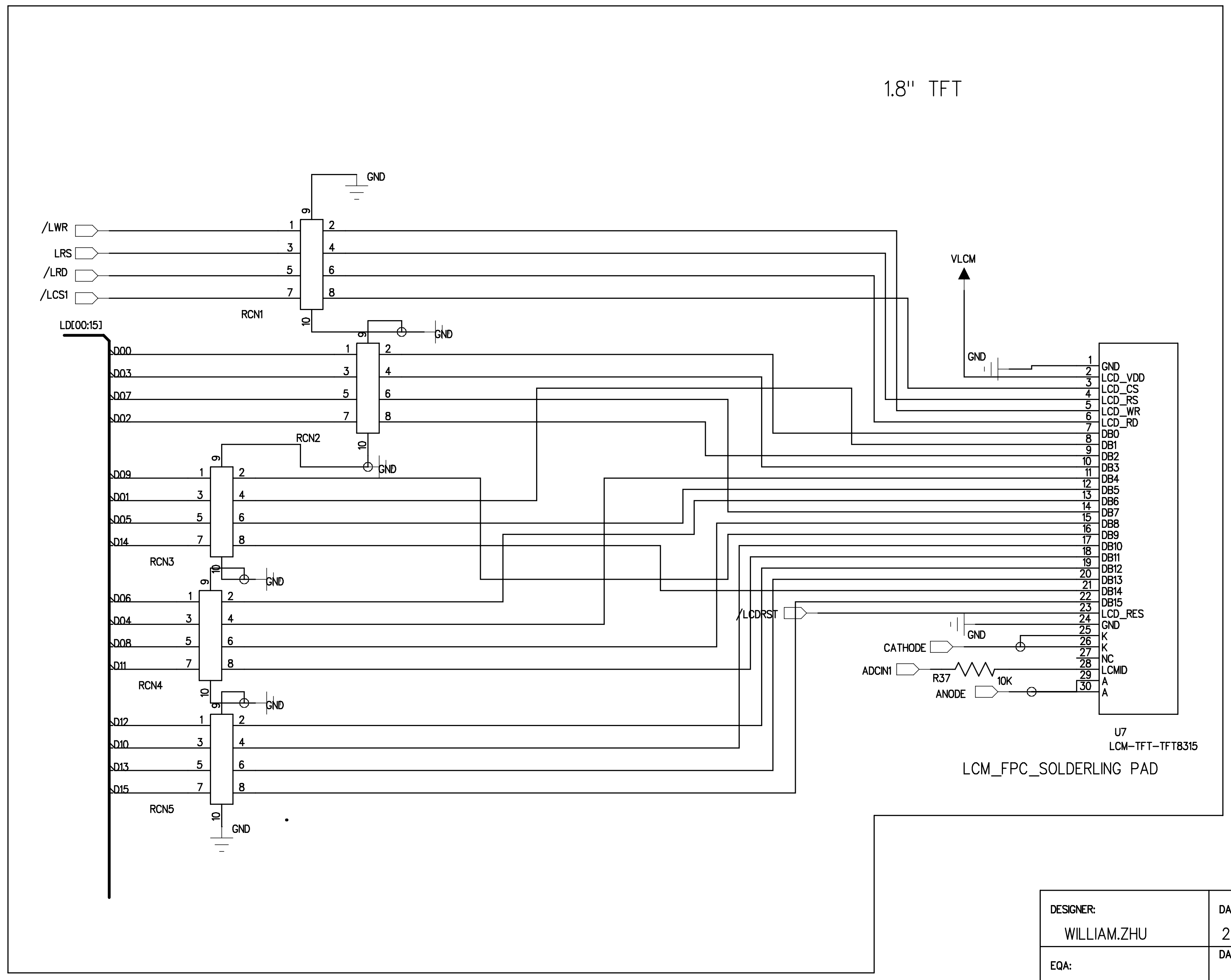
3.3 V Supply


C33
1uF
GND
ANODE
D12
RB551V-30
L2
IND-POWER-10UH-NLFC201614T-100K
10UH
C44
2.2uF
VBAT
D15
UDZSTE-1716B
U8
1 SW
5 VBAT
3 FB
4 SHDN
GND 2
POWER-DC2DC-LT1937
CATHODE
LCMBACKLIGHT-EN
R116 150
R117 0
R118 100K
Q3
FET-N-2SK3019
MTRST/BACKLIGHT_CTL
R65
1K
C37
0.1uF
GND

BAKELIGHT CIRCUIT

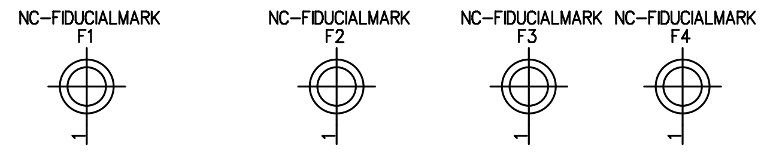

VBAT
U6
1 IN
3 EN
2 GND
4 BYPASS
OUT 5
C58 0.1uF
C57 0.1uF
GND
FET-P-SI1305DL
U11
2.5V
D1
BAT54XV2T1(NF)
C35 10uF
DOVDD
R3 100K
C3 0.1uF
VLCM
FET-P-SI1305DL
U1
R60 100K
SENSOR-PWDN
2.5V
R25 0
C1 0.1uF
DOVDD
R39 NF
R42 0
S-SDA
S-SCL
SENSOR-RSTN
VSYNC
HREF
SD9
DOVDD
CON1
1 NC
2 AGND
3 SIO_D
4 AVDD
5 SIO_C
6 RESET
7 VSYNC
8 PWDN
9 HREF
10 DVDD
11 DOVDD
12 Y9
24 Y0
23 Y1
22 Y4
21 Y3
20 Y5
19 Y2
18 Y6
17 PCLK
16 Y7
15 DGND
14 Y8
13 XCLK
SD4 SD3 SD5 SD2 SD6 SPCLK SD7 SD8 SCLK
CON-BTB-F-GB040-24S-H15
GND
VDDCORE
R18 100K
C14 0.1uF
U4
FET-P-SI1305DL
SENSOR-PWDN

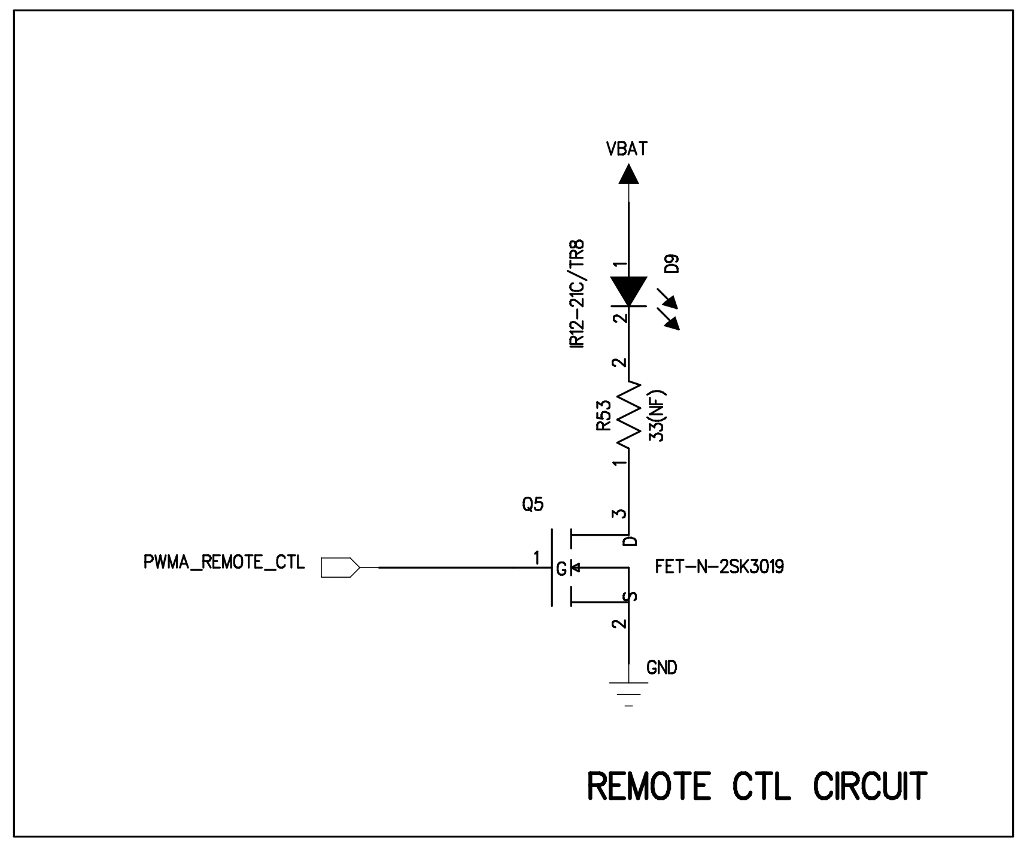
1.3MEGA OV9650 CAMERA


/LWR
LRS
/LRD
/LCS1
RCN1
RCN2
RCN3
RCN4
RCN5
GND
LD[00:15]
D00 D03 D07 D02
D09 D01 D05 D14
D06 D04 D08 D11
D12 D10 D13 D15
VLCM
/LCDRST
CATHODE
ADCIN1
R37
10K
ANODE
1 GND
2 LCD_VDD
3 LCD_CS
4 LCD_RS
5 LCD_WR
6 LCD_RD
7 DB0
8 DB1
9 DB2
10 DB3
11 DB4
12 DB5
13 DB6
14 DB7
15 DB8
16 DB9
17 DB10
18 DB11
19 DB12
20 DB13
21 DB14
22 DB15
23 LCD_RES
24 GND
25 K
26 K
27 NC
28 LCMID
29 A
30 A
U7
LCM-TFT-TFT8315

1.8" TFT

LCM_FPC_SOLDERLING PAD


NC-FIDUCIALMARK
F1
NC-FIDUCIALMARK
F2
NC-FIDUCIALMARK
F3
NC-FIDUCIALMARK
F4


VBAT
D9
IR12-21C/TR8
R53
33(NF)
Q5
FET-N-2SK3019
PWMA_REMOTE_CTL
GND

REMOTE CTL CIRCUIT

| | |
|---|---|
| TITLE & REV: | SP7350_SCH_V1.3.0 |
| DOCUMENT NO.: | HW-SP7350-SCH-0003 |

| | | |
|---|---|---|
| DESIGNER:<br>WILLIAM.ZHU | DATED:<br>2005.8.13 | DEPARTMENT:<br>Hardware DEPT. |
| EQA:<br>Calvin Chen | DATED:<br>2005.8.15 | COMPANY:<br>Spreadtrum communications, Inc. |
| APPROVED:<br>Liwan.Liang | DATED:<br>2005.8.15 | CONFIDENTIAL AND PROPRIETARY — SHEET: 5 OF 5 |